What is claimed is:

1. A method of switching from a single input optical fiber to at least two output fibers comprising the steps of:

providing an input signal into an input optical fiber;

splitting said input signal to form a plurality of split input signals;

amplifying at least one of said plurality of said split input signals with an amplifier to produce at least one output signal; and

outputting said at least one amplified split input signals through corresponding at least one output fiber.

2. The method of claim 2 comprising the additional step of attenuating each of said plurality of said split input signals prior to said step of amplifying.

3. The method of claim 2 wherein attenuating each of said plurality of said split input signals comprises filtering said split input signals.

4. The method of claim 2 wherein attenuating said plurality of said split input signals comprises the step of passing said split input signals through a partially opaque section of fiber.

5. The method of claim 1 wherein said amplifier is an erbium doped optical fiber pumped by a laser.

6. The method of claim 1 wherein said plurality of said split input signals is reduced from a first intensity corresponding to a "1" below a second intensity corresponding to a "0".

7. The method of claim 1, further comprising the step of simultaneously switching said signals at multiple frequencies from a single input fiber to at least two output fibers.

8. The method of claim 1 wherein said splitting said input signal is repeated in binary fashion N times to produce 2^N optical fibers.

9. A fiber optic switch comprising:

an input optical fiber capable of transmitting an input signal;

at least one splitter joined to said input optical fiber for splitting said input optical fiber to form a plurality of split optical fibers, each of said split optical fibers being capable of carrying a copy of said input signal; and

at least one amplifier for each of said plurality of said split optical fibers, each amplifier being controllable to produce at least one output signal.

10. The switch of claim 9 further comprising at least one attenuator joined to each amplifier to receive the output signal and provide an attenuated output signal.

11. The switch of claim 10 wherein said attenuator is a partially opaque section of optical fiber.

12. The switch of claim 11 wherein said attenuator has the capability of reducing the input signal copy in the joined split optical fiber to an intensity low enough to be interpreted as a dark fiber.

13. The switch of claim 9 wherein a plurality of said at least one splitter are arranged in at least two levels of binary switches.

14. A fiber optic switch comprising:

an input optical fiber capable of transmitting an input signal;

a first splitter joined to said input optical fiber having a main output and a cancellation processing output;

at least one second splitter joined to said first splitter main output for splitting said main output to form a plurality of split optical fibers, each of said split optical fibers being capable of carrying a copy of said input signal;

at least one amplifier joined to each of said plurality of said split optical fibers, each amplifier being controllable to produce at least one output signal at an amplifier output;

at least one adder having a signal input, cancellation input and a summed output, said adder signal input being joined to one said amplifier output; and

a third splitter joined to said first splitter cancellation processing output having a plurality of outputs corresponding to each said adder;

wherein a first path is defined from said first splitter main output through said second splitter, said at least one amplifier to said adder signal input; and

a second path is defined from said first splitter through said third splitter to said adder cancellation input; said first path differing from said second path by one-half wavelength of the input signal.

15. The switch of claim 14 further comprising an attenuator interposed between said first splitter and said third splitter.